Séminaire
Mercredi 30 janvier 2013, 10:00
Salle de réunion (1er étage), CEN

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Glacier, ice-sheet and seasonal snowpack research at the University of Utah

Résumé:

A sampling of cryospheric studies from the University of Utah, Department of Geography will be presented:

Results from two traverses on the Greenland ice sheet measuring snow accumulation rates in the southeast and the discovery of liquid water persisting throughout the winter in the firn will be discussed. This perennial firn aquifer (PFA) is concentrated in the southern ice sheet where snow accumulation rate and melt intensity are high. The estimated mass of retained liquid water for April 2011 is 17 +/- 1 Gt. The PFA represents a new storage mechanism for the ice sheet, and needs to be considered in ice sheet hydrology, mass, and energy budget calculations. Fieldwork in SE Greenland for April 2013 is planned to further characterize the thickness, volume, temperature profile, water age, and stratigraphy of the PFA.

Our group is also measuring Alaska glacier velocity changes from synthetic aperture radar (SAR) and optical satellite sensors show spatial and temporal variability.
We are also using satellite remote sensing data to develop daily snow covered area time series by fusing coarse-resolution sub-daily image data with high-resolution twice-monthly images. We are experimenting with ground-based techniques such as time-lapse photography, distributed temperature loggers, and snow moisture probes to measure the timing of the snow melt onset and disappearance of snow in the spring. We are tracking these changes horizontally across various land cover types as well as vertically within the snowpack at key locations.